CLAIMS

1. Intravenous nanoparticles for targeting drug delivery and sustained drug release, characterized in that a low-molecular weight, water-soluble and non-peptide drug is made hydrophobic by metal ion and is encapsulated in nanoparticles formed with poly(lactic-co-glycolic acid) or poly(lactic acid), and a surfactant is applied to the surface of the nanoparticles of poly(lactic-co-glycolic acid) or poly(lactic acid).

2. The intravenous nanoparticles according to claim 1, wherein the particles have a diameter of 50 to 300nm.

3. The intravenous nanoparticles according to claim 1, wherein the low-molecular weight, water-soluble and non-peptide drug has a molecular weight of 1000 or lower.

4. The intravenous nanoparticles according to claim 1, wherein the metal ion is any of zinc, iron, copper, nickel, beryllium, manganese, and cobalt.

5. The intravenous nanoparticles according to claim 1, wherein the low-molecular weight, water-soluble and non-peptide drug has a phosphate group to make the drug susceptible to hydrophobicization by the metal ion.

6. The intravenous nanoparticles according to claim 1, wherein the low-molecular weight, water-soluble and non-peptide drug has a carboxyl group to make the drug susceptible to hydrophobicization by the metal ion.

7. The intravenous nanoparticles according to claim 1, wherein the low-molecular weight, water-soluble and non-peptide drug is a steroidal anti-inflammatory drug, a non-steroidal anti-inflammatory drug, a prostanoid, an antimicrobial drug, or an anticancer drug.

8. The intravenous nanoparticles according to claim 1, wherein the surfactant is a polyoxyethylene polyoxypropylene glycol, a polysorbate, a polyoxyethylene octylphenyl ether, a lecithin, or a polyvinylalcohol.

9. A method for producing intravenous nanoparticles for targeting drug delivery and sustained drug release, comprising the steps of:

hydrophobicizing a low-molecular weight, water-soluble and non-peptide drug by the use of metal ion;

dissolving or suspending, along with a poly(lactic-co-glycolic acid) or a poly(lactic acid), the hydrophobicized drug in a water-miscible organic solvent; and

adding the resulting solution or the suspension to an aqueous solution of a surfactant to apply the surfactant to the surface of the nanoparticles.

10. The method for producing intravenous nanoparticles according to claim 9, wherein the particles have a diameter of 50 to 300nm.

11. The method for producing intravenous nanoparticles according to claim 9, wherein the low-molecular weight, water-soluble and non-peptide drug has a molecular weight of 1000 or lower.

12. The method for producing intravenous nanoparticles according to claim 9, wherein the metal ion is any of zinc, iron, copper, nickel, beryllium, manganese, and cobalt.

13. The method for producing intravenous nanoparticles according to claim 9, wherein the low-molecular weight, water-soluble and non-peptide drug has a phosphate group to make the drug susceptible to hydrophobicization by the metal ion.

14. The method for producing intravenous nanoparticles according to claim 9, wherein the low-molecular weight, water-soluble and non-peptide drug has a carboxyl group to make the drug susceptible to hydrophobicization by the metal ion.

15. The method for producing intravenous nanoparticles according to claim 9, wherein the low-molecular weight, water-soluble and non-peptide drug is a steroidal anti-inflammatory drug, a non-steroidal anti-inflammatory drug, a prostanoid, an antimicrobial drug, or an anticancer drug.

16. The method for producing intravenous nanoparticles according to claim 9, wherein the surfactant is a polyoxyethylene polyoxypropylene glycol, a polysorbate, a polyoxyethylene octylphenyl ether, lecithin, or a polyvinylalcohol.

17. An anti-inflammatory/anti-rheumatoid drug containing nanoparticles encapsulating a water-soluble steroid according to claim 1, as an active ingredient.

18. The anti-inflammatory/anti-rheumatoid drug according to claim 17, wherein the water-soluble steroid is betamethasone phosphate.